

Metropolitan Transportation Plan for Clark County



Southwest Washington Regional Transportation Council

CHAPTER 2

LAND USE, GROWTH AND TRANSPORTATION

LAND USE AND TRANSPORTATION

In developing a metropolitan transportation plan the fundamental relationship between transportation and land use should be recognized and the effect that land use and growth have on transportation considered.

The linkage between land use and transportation is a complex issue but on a simple level the linkage can be thought of as working in two ways:

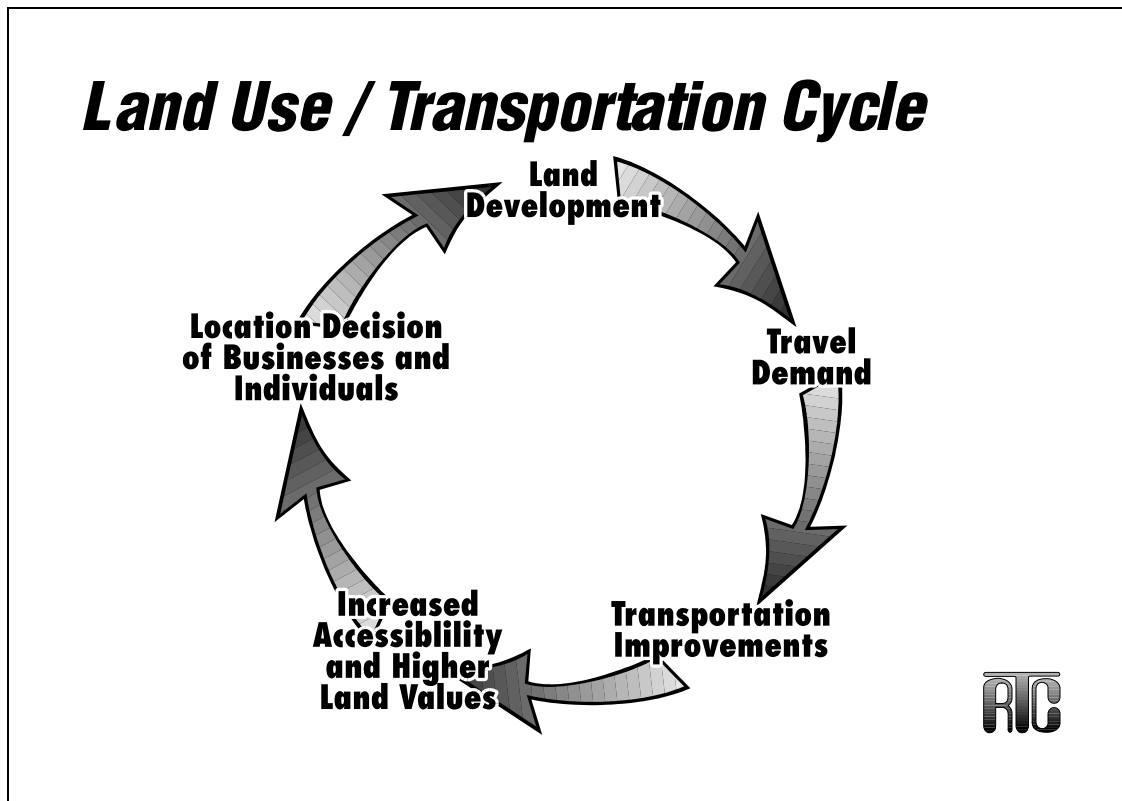
- 1) The spatial distribution and type of land use activity influences both the demand for travel and travel characteristics.

Different types of land use generate and attract differing traffic rates, for example, retail land uses will generate more trips than residential land uses.

- 2) Improving access by expanding the transportation system allows for the development of land that was formerly inaccessible.

The Land Use/Transportation cycle is illustrated in Figure 2-1.

Figure 2-1: Land Use/Transportation Cycle



The Washington State 1990 Growth Management Act (GMA) recognized the importance of the linkage between land use and transportation. The Act requires that local comprehensive plans include a transportation element. Under the GMA, RTPOs were established to extend transportation planning. RTC was designated as RTPO for a three-county region which includes Clark, Skamania and Klickitat counties. The RTPOs were authorized to review the transportation elements of local comprehensive plans and certify that they comply with the GMA that requires consistency between land use and transportation elements.

Land use and transportation are inter-linked; land use activities largely determine travel demand and desire. When different land uses are segregated, length of trips tends to increase as, for example, people have to travel between their homes and their workplaces. To meet mobility needs, these longer trips usually have to be served by the automobile, thus reducing the use of transportation alternatives, such as walking or transit.

GROWTH AND DEVELOPMENT

Sustained economic development and growth within a region is desirable because of the economic benefits that increased employment and a larger tax base can bring. However, while growth can contribute to the health of a region's economy it can also have adverse impacts. Unmanaged, fast rates of growth can have a severe impact on the ability of a community to provide needed infrastructure and services. The costs of growth can include worsening levels of traffic congestion, decline in air quality, and overall degradation of the quality of life.

The need to maintain economic viability and, at the same time, quality of life is a challenge. Elements that contribute to a desirable quality of life include job opportunities, affordable housing, a healthy environment with clean air and recreational opportunities. An efficient, safe transportation system can also contribute to the quality of life for residents of a region and can act as an attractor for economic development.

GROWTH IN CLARK COUNTY

Clark County has seen significant rates of growth in the last two decades. Between 1980 and 2000 the population of the county increased by 80% from 192,227 in 1980 to 345,238 in 2000 while the number of households increased by 85% from 68,750 in 1980 to 127,208 in 2000 (see Figure 2-2). The 1980 to 2000 increase in employment¹ in the county was 124% from 52,870 in 1980 to 118,310 in 2000. Washington State's Office of Financial Management (OFM) estimates that Clark County's 2005 population is at 391,500. The rapid growth seen in the County in the last two decades has increased demands on the regional transportation system.

¹ Employment numbers used in the MTP are the equivalent of U.S. Department of Labor, Bureau of Labor Statistics (BLS) or 'covered employment'. In comparison, the Department of Commerce, Bureau of Economic Analysis (BEA), reports total employment that includes all wage and salaried jobs as well as proprietors' jobs that includes sole proprietor, self employed and farm employment.

Development of a transportation policy plan to provide for mobility of people and freight has to consider how to plan for a transportation system which can support an increase in travel demand caused by growth in population and employment. At the same time, this system has to be affordable and avoid environmental impacts to maintain the quality of life. A safe, efficient transportation system can work to enhance economic development within a region and development of the transportation system in conjunction with land use plans can contribute to positive growth management.

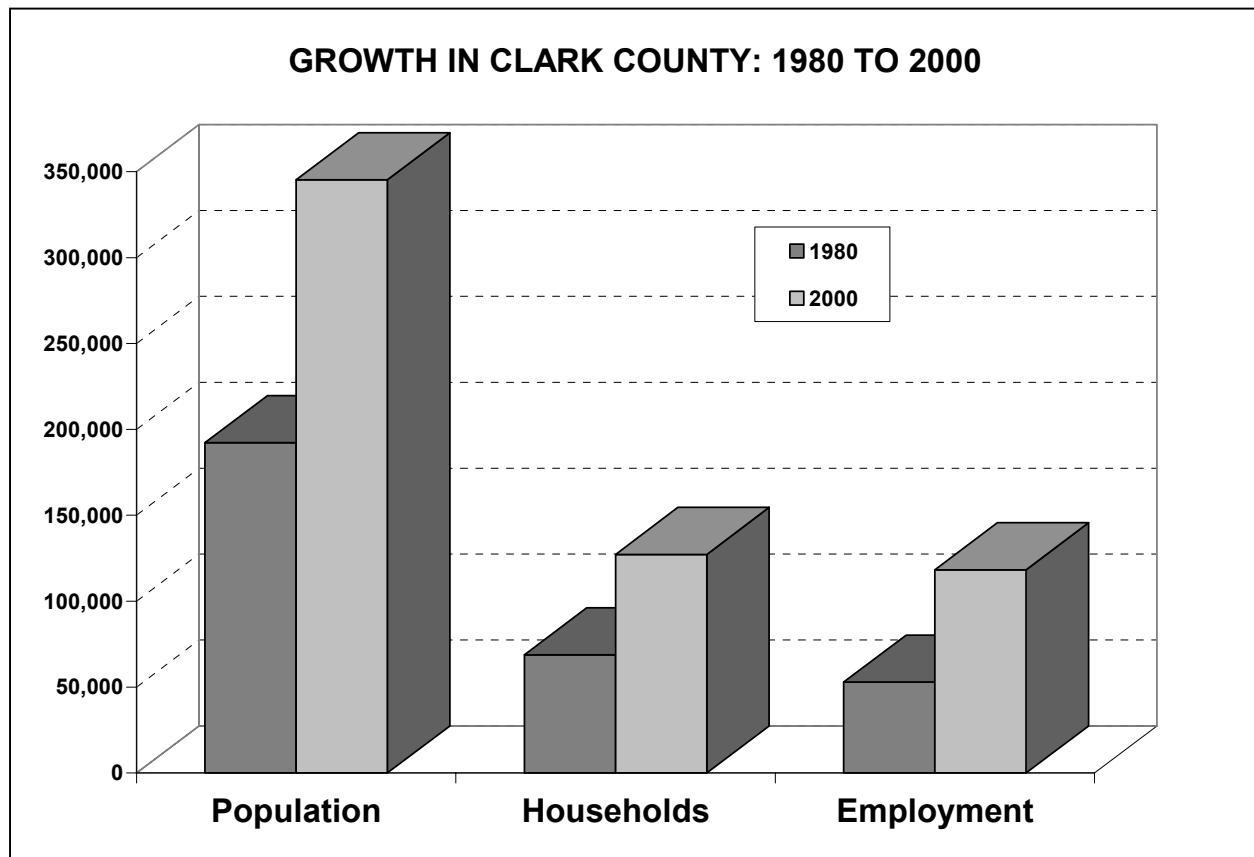


Figure 2-2: Growth in Clark County, 1980-2000

Sources: U.S. Census Bureau, U.S. Bureau of Labor Statistics

EXISTING LAND USES IN CLARK COUNTY

From the City of Vancouver, the urban hub of the county on the banks of the Columbia River, Clark County spreads through a rapidly growing suburban band, across agricultural lands and a network of smaller cities and towns to the slopes of the Cascade Mountain Range. The county is compact, measuring approximately 25 miles across in either direction and has an area of 405,760 acres (627 square miles).

Clark County's growth was stimulated by the development of "traditional" industries such as pulp and paper manufacturing, aluminum production and, during the wartime years, shipbuilding

activities. In recent years the county has proved to be attractive to new manufacturing activities; the region is able to offer reasonably priced land for development in an attractive setting within a metropolitan area. Power is affordable and the region's location on the Pacific Rim, with easy access to Portland International Airport, has contributed to its growth and development. With the establishment of "new" high technology industries the region has been successful in diversifying its economic base. Major employers include the local school districts, Southwest Washington Medical Center, Hewlett-Packard, county and city government, Fred Meyer stores, the Bonneville Power Administration, Safeway stores, Georgia-Pacific Corporation, Burlington Northern Santa Fe Railroad, Wafertech, SEH America, Kaiser Permanente, the Vancouver Clinic, Frito-Lay, Holland-Burgerville, R S Medical, and Electric Lightwave, Inc.

Clark County's location on the northern periphery of the Portland metropolitan area has contributed to the significant growth in residential developments and employment activities within the county in recent years. The nationwide trend toward development of the suburbs of metropolitan areas for residential developments, as well as employment activities, is apparent in this region. This development trend has implications for the provision of transportation infrastructure and services.

In Clark County the past two decades has seen population growth in both the incorporated and unincorporated areas. Between 1980 and 2000 the incorporated areas saw a growth in population of 213% (57,248 population in 1980 to 178,959 in 2000) while the growth in the unincorporated areas was 23% (from 134,979 population in 1980 to 166,279 in 2000). The proportion of the population living in the unincorporated areas decreased from 70% in 1980 to 48% in 2000 while the proportion living in the incorporated areas increased from 30% in 1980 to 52% in 2000 (see Figure 2-3). Annexations by the City of Vancouver and the County's smaller cities have produced this trend. A large annexation of the Cascade Park area to Vancouver took place in 1997 when Vancouver became the State's fourth largest city. In 1996, the City of Vancouver's population was at 67,450 and in 2005 it is estimated at 154,800. In 2005, 202,545 (52%) of Clark County's population lived in incorporated areas and 188,955 (48%) lived in unincorporated areas.

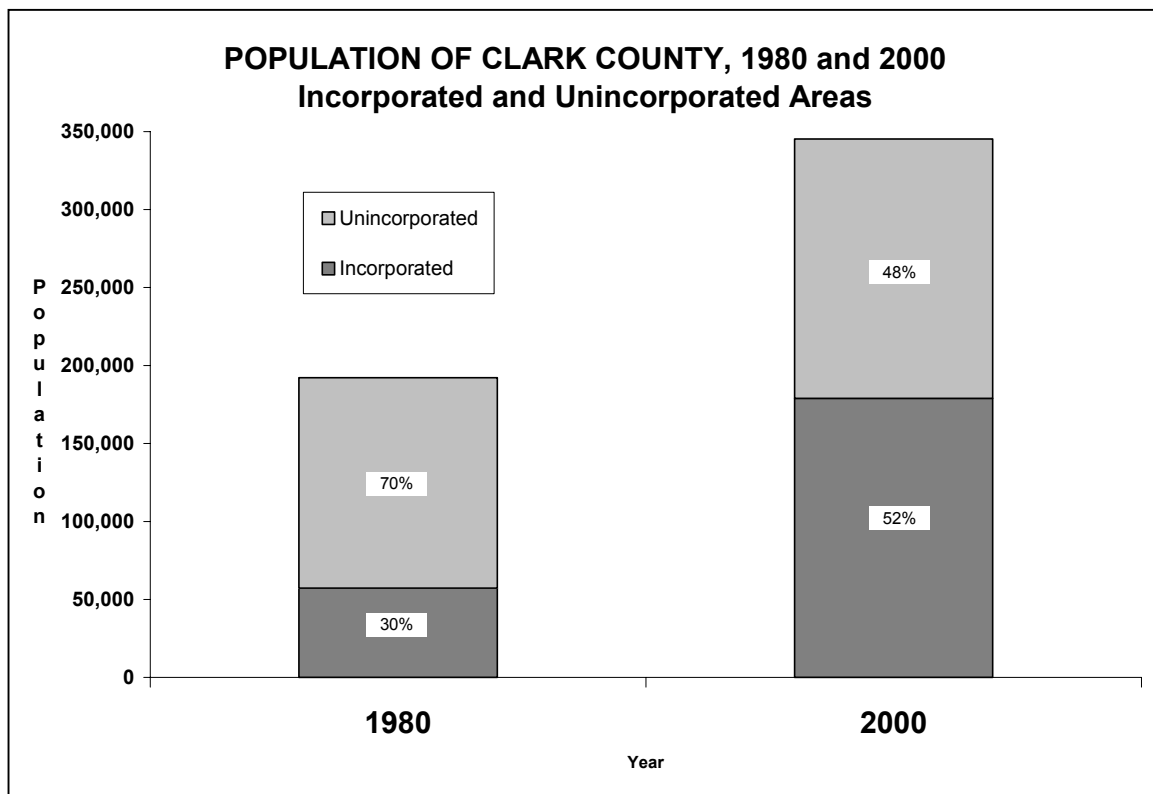


Figure 2-3: Incorporated and Unincorporated Population, 1980 and 2000

Sources: Washington State Office of Financial Management (OFM)

The provision of public facilities and services, including transportation facilities such as highways, bicycle lanes and pedestrian paths as well as transit services, is a principal determinant of land use patterns. Contemporary land use patterns in Clark County have evolved largely as a result of its residents' dependence on the automobile for their mobility. An examination of land use maps for Clark County indicates that residential and commercial development has spread out along Highway 99, Fourth Plain, Mill Plain and SR-14. The opening of SR-500 and I-205 stimulated growth in the Vancouver Mall and Cascade Park/East County areas in the late 1980's and 1990's by offering increased accessibility to the two areas.

The City of Vancouver had seen relatively small growth in its population in the 1970's and 1980's. However, several significant annexations of land into the City boosted its population from 65,360 in 1995 to 127,900 in 1997. In 2005, Vancouver's population is estimated at 154,800. In the late 1970's and early 1980's, the focus of retail activity shifted from downtown to the area of the Vancouver regional mall and it was annexed to the City in 1992. In the early 2000's, downtown Vancouver is seeing revitalization with opening of several office buildings, residential units and a new hotel and events center.

The Vancouver Mall, now known as Westfield Shoppingtown, area was a relatively isolated and undeveloped tract of the unincorporated County when the 918,000 square foot shopping mall was constructed in two phases in 1977 and 1980. However, the improved access provided by the

completion of the I-205 Glenn Jackson Bridge in 1982 and SR-500 in 1984, contributed to the area's rapid development in recent years. New commercial, retail, and residential developments have been attracted to the area, including offices, shops, restaurants, hotel units and apartments. The first phase (over 440,000 square feet) of Vancouver Plaza, a retail development on 45 acres to the south-west of Vancouver Mall, opened in fall 1988 and the Parkway Plaza development to the west of the Mall has seen the completion of several large office buildings.

The Glenn-Jackson Bridge that carries I-205 traffic across the Columbia opened in 1982. This provided a second Portland-Vancouver area river crossing. It relieved the bottleneck on I-5 and opened up access to the Portland region, including access to Portland International Airport located just to the south west of the bridge, from east Clark County. Rapid development of the area to the east of I-205 followed. A lot of the County's 1990's growth focused on the Mill Plain and 164/162nd Avenue corridors in east County. A mix of residential, commercial and business development has taken place. Residential development ranges from the adult community at Fairway Village to numerous large apartment developments and the Fisher's Landing development. Commercial development began in the area in 1978 when Fred Meyer opened a shopping center at Chkalov and Mill Plain. Others were quick to realize the area's commercial potential. Recent commercial developments have included the Fred Meyer development at SE 164th Avenue and SE 20th Street and the Mill Plain Town Center, anchored by Target, at Mill Plain and 164th Avenue. Business center developments include Columbia Tech Center and Stonemill Business Park.

Over the past 15 years, there has been significant growth in the cities of Clark County (see Table 2-1) and this trend appears to be one that is set to continue early in the 21st century. The growth in the smaller cities of Clark County will require improvements to the transportation facilities connecting these urban areas with the larger Vancouver and Portland metropolitan area and will also necessitate the development of an adequate internal circulation system within these cities.

The provision of public facilities and services, including transportation, has shaped the development of land uses in Clark County up to the present and is likely to continue to do so into the future.

Table 2-1: Growth in Population of Clark County Cities, 1990 to 2005

Growth in Population of Clark County Cities, 1990 to 2005						
	1990	1995	2000	2005	% Increase 1990 to 2005	2005 % of County Population
Clark County Total	238,053	286,804	345,238	391,500	64%	100.0%
Unincorporated	173,844	195,479	166,279	188,955	9%	48.3%
Incorporated	64,209	91,325	178,959	202,545	215%	51.7%
Battle Ground	3,758	5,015	9,322	14,960	298%	3.8%
Camas	6,798	8,355	12,534	15,460	127%	3.9%
La Center	483	997	1,654	2,095	334%	0.5%
Ridgefield	1,332	1,550	2,147	2,630	97%	0.7%
Vancouver	46,380	68,589	143,560	154,800	234%	39.5%
Washougal	4,764	5,808	9,595	11,350	138%	2.9%
Woodland <i>part</i>	94	154	92	90	-4%	0.0%
Yacolt	600	857	1,055	1,160	93%	0.3%

LAND USE: PLANS FOR THE FUTURE

Comprehensive plans are the means by which local jurisdictions plan for their future growth and development; they can provide a process for anticipating and influencing the orderly and coordinated development of land. Within Washington State planning authority is delegated by the state to local governments in RCW 36.70A, 35.63 and 35A.63. Before passage of the Growth Management Act, comprehensive plans were required to have a land use element showing the general distribution and location of land for various uses, as well as a circulation element showing the street system and transportation routes. Under planning provisions contained in the 1990 Growth Management Act, now codified in RCW 36.70a and RCW 47.80, local comprehensive plans are now the basis for defining and integrating land use, transportation, capital facilities, public utilities and environmental protection elements. Within the comprehensive planning process these elements have to be inter-related and there has to be consistency between them. The GMA legislation requires that land use decisions should not be made without consideration of transportation needs and impacts.

CLARK COUNTY JURISDICTIONS' COMPREHENSIVE LAND USE PLANS AND ZONING - USE IN THE REGIONAL TRANSPORTATION PLANNING PROCESS

As part of the Growth Management planning process, Clark County adopted a *Community Framework Plan* in April 1993 to serve as a guide for the County's long-term growth over a period of fifty plus years. The *Framework Plan* envisioned a collection of distinct communities; a hierarchy of growth and activity centers with land outside the population centers to be

dedicated to farms, forests, rural development and open space. The twenty-year *Comprehensive Growth Management Plan for Clark County* is to guide the growth of the County toward the future vision. The 1994 Comprehensive Growth Management plans for the urban areas of Clark County were developed by Clark County and the cities and town of the region through a Partnership Planning process. The twenty year plans included urban area boundaries. Plans for the rural and natural resource lands are handled by Clark County. GMA plans for the County and urban areas are subject to review under the State Environmental Policy Act (SEPA). In September, 1994, the *Final Supplemental Environmental Impact Statement for the Comprehensive Growth Management Plans of Clark County, Battle Ground, Camas, La Center, Ridgefield, Vancouver, Washougal, Yacolt, Volume I and Public Comments, Volume II* was published by Clark County. The public was given many opportunities to be involved in and provide input to the planning process. In December of 1994 the Comprehensive Growth Management Plan for Clark County was adopted and in May of 1996 revisions were adopted.

In September 2004, an update to the Comprehensive Growth Management Plan for Clark County was adopted with a horizon year of 2023. The updated Comprehensive Growth Management Plan established a population forecast for 2023 of 529,612, an employment forecast of 206,235² jobs and a household forecast for 2023 of 196,882 households.

Comprehensive plans are used in the regional transportation planning process as the basis for determining future land uses and identifying where future development is likely to occur. The MTP update must be based on adopted land use plans of local jurisdictions. The MTP's horizon year is 2030 because an MTP must cover at least a 20 year planning period and it is strongly encouraged by federal agencies that the twenty year horizon be maintained throughout the MTP's period of validity before the MTP is again updated. Therefore, a 2030 horizon year was selected. 2030 land uses are based on the adopted Comprehensive Growth Management Plan for Clark County (Clark County, September 2004) which has a horizon year of 2023, extended seven years to the MTP's 2030 horizon. The 2030 demographic projections and land use allocations were developed by local jurisdictions working in partnership with RTC.

Currently, in 2005/2006, the Comprehensive Growth Management Plan for Clark County is again in the process of being updated. The update is due to be adopted in 2006. The update to the Plan will be the basis for the next MTP update.

POPULATION AND EMPLOYMENT FORECAST

For the Portland-Vancouver metropolitan region as a whole, demographic forecasts are usually formulated through a cooperative planning process led by the Metropolitan Service District (Metro), Portland, Oregon. The forecast region includes Clark County in Washington State, as well as Multnomah, Clackamas, Washington, Yamhill, Columbia and North Marion counties in Oregon. Worldwide, national and regional economic assumptions are the basis for determining

² Bureau of Labor Statistics equivalent employment or 'covered' employment.

future forecast demographics in the region. The Growth Management Act passed in Washington State in 1990 requires that Growth Management Plans have to support a population forecast developed by the Washington Office of Financial Management (OFM). The GMA directs OFM to prepare twenty-year GMA planning projections that are updated every five years. Each County's GMA projection is expressed as a range between a reasonable High and Low projection. Counties select a GMA planning population within the range released by OFM. In this region, OFM consults with Metro and local jurisdictions in determining the forecast. In January 2002, OFM released the GMA County projections to 2025. For Clark County, the OFM projected 2025 population falls within a range from a low of 473,984 to a high of 621,763 with a mid-range projection of 544,809.

For MTP regional transportation planning purposes, a 2030 population forecast of 592,378 is used. The number of households is forecast to be 220,215, and total employment is forecast to be 238,515 in 2030. The 2030 forecasts represent a 72% increase in population from a 2000 population of 345,238, a 73% increase in households, and a 102% increase in employment from 118,310 to 238,515 Bureau of Labor Statistics (BLS) equivalent jobs or "covered employment". (see Figures 2-4 and 2-5).

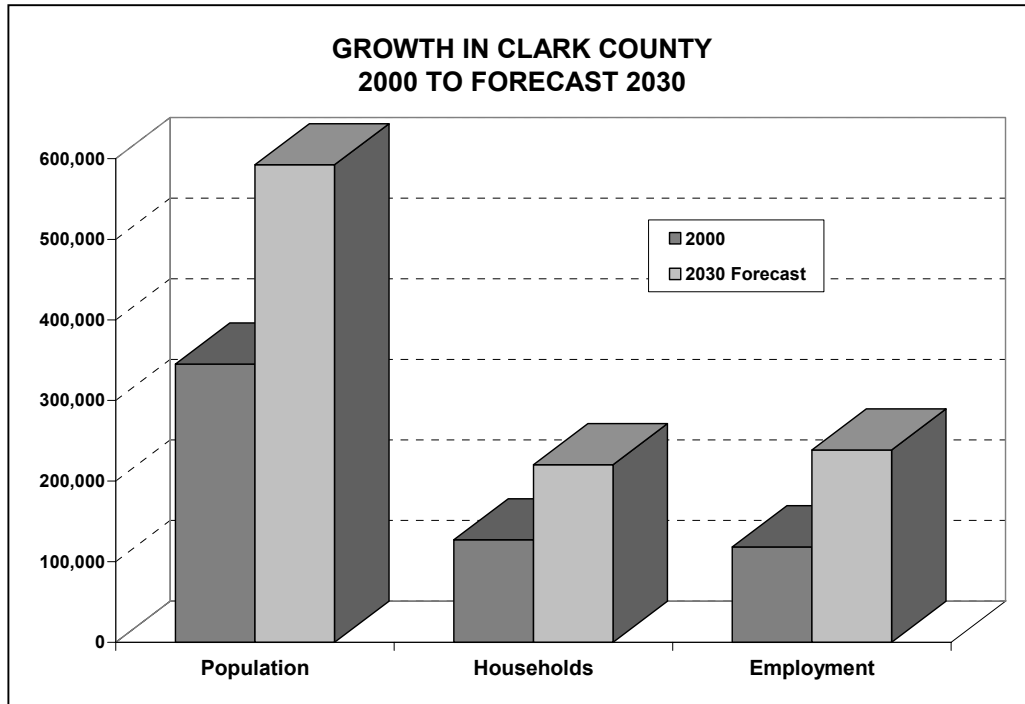
TRANSPORTATION ANALYSIS ZONES

In the regional transportation planning process the forecast growth in housing and employment for the year 2030 is converted into projections of future travel demand. For the purpose of analyzing future travel demand, a "Transportation Analysis Zone" (TAZ) System is used. The Portland metropolitan area is divided into TAZs; there are 650 zones in Clark County and 2 Clark County external zones. For each Clark County TAZ, the comprehensive plan land use designations and existing zoning are used as a basis for distributing 2030 forecasts for housing and employment. The demographic distributions are based on the County Assessor's data, building permit data and on vacant, buildable lands analysis.

DISTRIBUTION OF FUTURE GROWTH

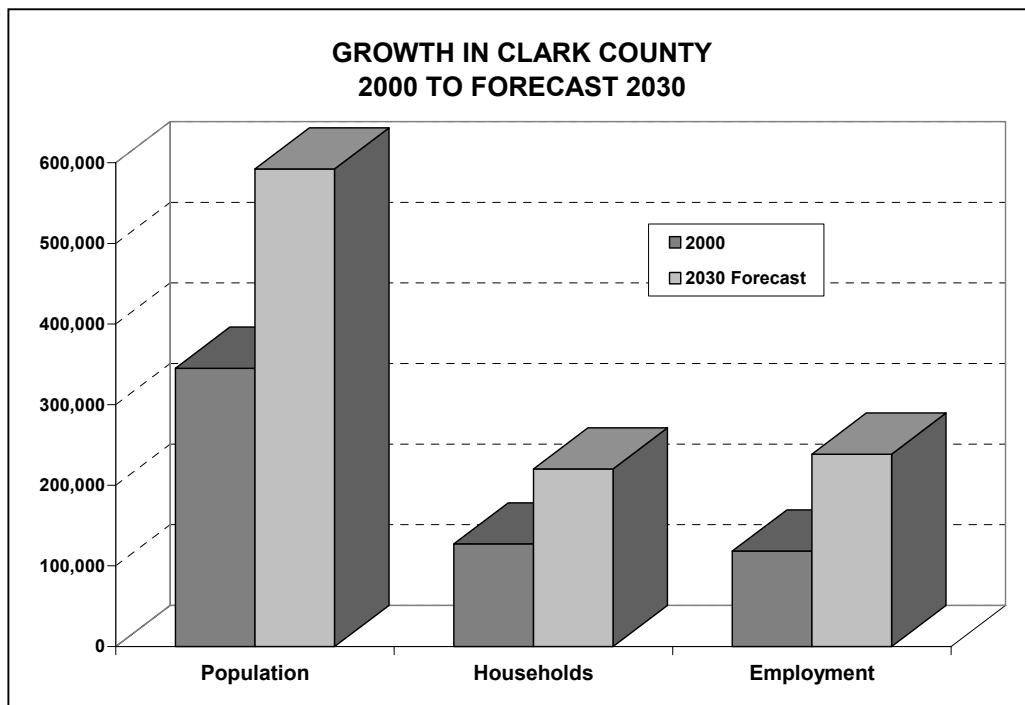
As described above, the population of Clark County is forecast to grow by 247,140 people during the planning period from 2000 to 2030 and employment is set to grow by 120,205. In growth management planning, denser patterns of development are to be encouraged along the main transportation corridors where there is transit service. In designated High Capacity Transit corridors, I-5, I-205 and SR-500/Fourth Plain, densities and appropriate urban designs are to be encouraged to maximize the efficiencies of land use and transit development. While the 1994 Comprehensive Plan forecast significant development in three growth centers within the Vancouver UGA: Downtown Vancouver, Vancouver Mall and the Salmon Creek/Washington State University vicinity, the 2004 Comprehensive Plan update forecasts the continuing growth of the smaller cities within Clark County. The smaller cities of Clark County are planning for denser development and expansion of their urban boundaries as they become the focus for growth outside of the core urban area of Vancouver.

Figure 2-4: Growth in Clark County, 2000 to Forecast 2030



Sources: U.S. Census Bureau, U.S. Bureau of Labor Statistics, WA State Office of Financial Mngmnt (OFM), and Clark Co.

Figure 2-5: Population, Housing and Employment in Clark County, 1980 to 2000 & Forecast 2030



Sources: U.S. Census Bureau, U.S. Bureau of Labor Statistics, WA State Office of Financial Mngmnt (OFM), and Clark Co.

DEMOGRAPHIC AND LAND USE TRENDS

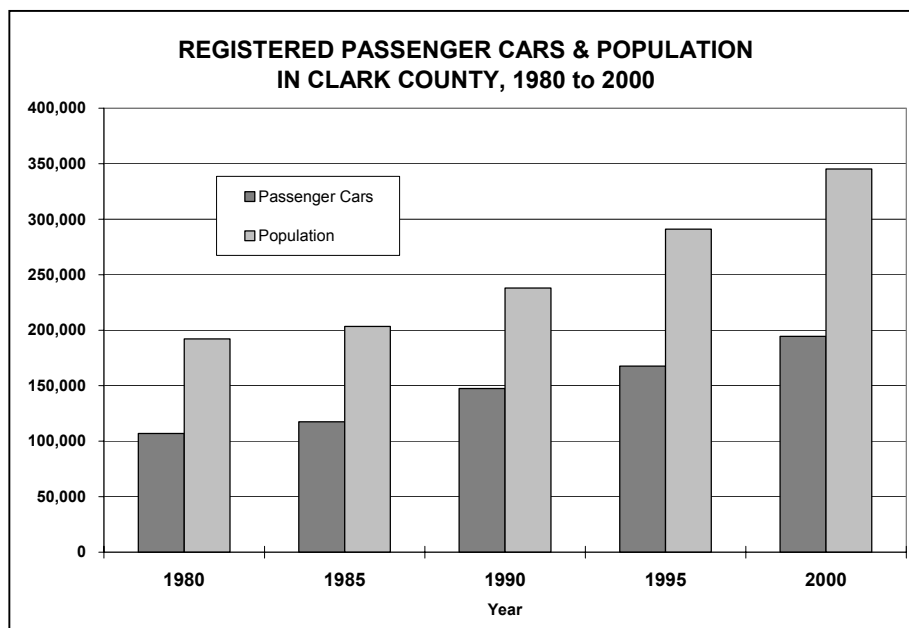
Growth in population and employment, development and resulting land use patterns together with its distribution all affect travel demand. However, other demographic factors also influence travel demand. These factors include household size, workforce participation, employment patterns and vehicle ownership. While the decades of the 1970s and 1980s saw significant change in these demographics, the decade of the 1990s did not see as much change.

Household size is one of the most significant demographic factors that influences land use and demand for transportation services. Decreased household size can result in development pressures for more housing and further expansion of land for residential uses to accommodate the additional houses. Expansion of residential land uses requires improvements and expansion to the transportation system to access new and developing residential areas. However, over the past two decades, the ratio of single family to multi-family housing has changed in Clark County with a move toward more multi-family housing. In 1980 there were 81% single family (including mobile homes) compared with 19% multi-family housing units. By 2000 these housing numbers had changed to 77% single family and 23% multi-family. In the decade of the 1980s there was a trend toward smaller household size due to more single-person households and smaller family size. In 1980 the average number of persons per household in Clark County was 2.76 but by 1990 it had fallen to 2.69. The decade of the 1990's saw no change in average household size in Clark County with the 2000 U.S. Census recording an average 2.69 persons per household in Clark County. Consistent with the Comprehensive Growth Management for Clark County (September 2004), the number of persons per household in the MTP is forecast to be 2.69 in 2030.

Another demographic trend that affects travel demand is the increase in two-worker households. Typically, the two workers in the household each use an auto to get to work, use the auto for work purposes while at work, use it to run errands at lunch time and before or after work and, if they have a family, to take their children to daycare facilities. All result in people's increased reliance on the automobile that people consider their most convenient transportation mode. Employment patterns have also been changing, with a relative decline seen in the traditional, blue-collar, industrial jobs and an increase in service sector employment. Clark County has seen this change in employment structure and has seen growth in "high-tech" employment and a large increase in the retail sector in recent years. The number of jobs is increasing in suburban areas such as Clark County and employment is dispersing throughout the region. The "new" suburban places of employment have also tended to add to travel demand because of their dispersal, their design has catered to auto-commuters and they are not as easily served by transit service.

Travel demand has also grown as the number of registered passenger cars in Clark County has increased. From 1960 to 1980 there was a 171% increase in passenger cars registered in Clark County (from 39,502 to 106,889 cars). In the period, 1960 to 1980, population increased by 105% from 93,809 to 192,227. However, in the past two decades, from 1980 to 2000, the percentage increase in population and passenger cars has been very similar with an 82% increase in passenger cars and an 80% increase in population. (see Figure 2-6).

Figure 2-6: Registered Passenger Cars & Population in Clark County, 1980-2000



Source: U.S Census Bureau, Washington State Department of Licensing

Table 2-2 shows the 1970 to 2000 increase in registered passenger cars and total registered vehicles (includes all trucks, commercial and recreational vehicles plus passenger cars) in Clark County. The number of passenger cars per household has increased at the same time as household size has decreased.

Table 2-2: Clark County Demographic Data, 1970, 1980, 1990 and 2000

CLARK COUNTY GROWTH TRENDS: 1970, 1980, 1990 and 2000										
Year	Popn.	Housing Units	Households	Persons per Household ¹	Jobs in Clark County ²	Jobs per Household	Registered Passenger Cars	Registered Passenger Cars Per Household	Registered Vehicles	Registered Vehicles Per Household
1970	128,454	42,816	41,064	3.10	32,610	0.79	62,586	1.52	95,788	2.33
1980	192,227	72,806	68,750	2.76	52,870	0.77	106,889	1.55	171,474	2.49
1990	238,053	92,849	88,440	2.69	80,100	0.91	147,401	1.67	238,629	2.70
2000	345,238	134,030	127,208	2.69	118,310	0.93	194,492	1.53	301,104	2.37

Source: U.S. Bureau of the Census, Washington State Department of Licensing and Washington Office of Financial Management.

¹ from census data

² Bureau of Labor Statistics (covered jobs)

Tables 2-3 and 2-4 also provide information that compares 1990 and 2000 census demographic data which is of relevance in the metropolitan regional transportation planning process.

Table 2-3: Summary of Clark County Demographics

		1990	1990 %	2000	2000 %
Population		238,053		345,238	
Age:	Under 70	221,034	92.9%	312,430	90.5%
	70 and Over	17,019	7.1%	32,808	9.5%
Race:	White	225,192	94.6%	306,648	88.8%
	Black or African American	2,976	1.3%	5,813	1.7%
	American Indian and Alaska Native	2,296	1.0%	2,910	0.8%
	Asian*	5,670	2.4%	11,095	3.2%
	Other*	1,919	0.8%	18,772	5.4%
Origin:	Non-Hispanic/Non-Latino	232,181	97.5%	328,990	95.3%
	Hispanic/Latino	5,872	2.5%	16,248	4.7%
Language Spoken at Home	Population over 5 years	219,563	100%	318,152	100%
	Speak English Only	207,291	94.4%	281,613	88.5%
	Language other than English	12,272	5.6%	36,539	11.5%
	Speak English less than "Very Well"	4,556	2.1%	17,638	5.5%
Poverty:	Total Population for whom poverty status is determined	212,660	100%	341,464	100%
	Poverty Status (as defined by U.S. Census Bureau)	21,910	10.3%	31,027	9.1%

Source: U.S. Census Bureau

* NOTE: Direct comparison between 1990 and 2000 data is not possible for some categories. In 1990, Asian and Pacific Islanders were grouped and there was no reporting on two or more races.

Table 2-4: Clark County Journey to Work

Clark County	1990	1990 Percent	2000	2000 Percent	1990 to 2000 Growth	1990 to 2000 Percent Growth
Commuters	108,945		161,471		52,526	48.2%
Drive Alone	87,748	80.5%	128,014	79.3%	40,266	45.9%
Carpool	12,017	11.0%	18,089	11.2%	6,072	50.5%
Transit	2,275	2.1%	4,228	2.6%	1,953	85.8%
Other	1,224	1.1%	1,788	1.1%	564	46.1%
Walk and Home	5,681	5.2%	9,352	5.8%	3,671	64.6%
Mean Travel Time to Work (those that work outside home)	21.2 mins.	N/A	24.7 mins.	N/A	3.5 mins.	16.5%

Source: U.S. Census Bureau

Growth in population as well as the other demographic factors described above has resulted in increase in travel demand to be met by Clark County's transportation system. Development of land, growth in population and travel demand requires a combination of expansion of public facilities and service provision and a revision to land use plans to ensure mixed use developments and better balance of jobs and housing throughout the region. One of the goals of the comprehensive plan for the Clark County region, developed under the Growth Management Act (GMA), is to reverse the trend of increased dependence on the automobile. In the comprehensive plan, land uses and transportation have been linked in the planning process and their inter-relationships considered in developing a vision for future growth and future growth patterns. In assessing future transportation needs for the Clark County region the comprehensive plans of its jurisdictions are used as a basis for analysis of the transportation system. The GMA requires that transportation system improvements be put in place 'concurrent' with land development.

Table 2-5: Summary of Clark County Growth Forecasts

CLARK COUNTY 2000 TO 2030 GROWTH FORECASTS: MTP			
	2000	MTP 2030	% Change 2000 to 2030
Population	345,238	592,378	72%
Households	127,203	220,215	73%
Employment	118,310	238,515	102%